

## **REMARKS**

With claims 4, 6-9 and 25-37 previously pending, this response cancels claims 7, 25-28 and 37.

### **Restriction Requirement**

Claim 37 that was newly presented in Applicants' previous Response is restricted by the present Office Action as a method for testing DUTs using a probe card, that is different from the invention of a probe card apparatus. The Office Action indicates that claim 37 is, thus, withdrawn from consideration. Applicants recognize this further restriction, and have accordingly cancelled claim 37.

### **Section 102 Rejection Based on Nachumovsky**

Claims 4, 7, 28 and 36 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Nachumovsky (U.S. Patent Application No. 2003/0074511 A1). This rejection is respectfully traversed as addressed with regard to individual claims below.

Regarding claim 4 and 36, the Office Action states that Nachumovsky in Fig. 2 shows a probe card assembly with a programmable controller (104) to control provision of signals to test probes (220), wherein the programmable controller (104) is connected through an interface (103, 201) to a test system controller (104). In response, Applicants note that the programmable controller (104) and test system controller (104) of Nachumovsky identified by the Office Action are the same component – tester 104. Applicant discloses a test system controller 4 and a separate programmable controller

(110 or 150). See Applicant's Figs. 6-7. Applicant's test system controller 4 is comparable to the tester 104 of Nachumovsky. Applicant's further controller (110 or 150) on board a probe card (or in the prober) is not shown by tester 104 of Nachumovsky. Accordingly, claim 4 is believed allowable over Nachumovsky.

Further, Nachumovsky does not disclose a wireless interface between a programmable controller and test system controller as particularly claimed in claim 36. Similarly, Nachumovsky is not believed to disclose any of the parallel, wireless, network, or RF interface connections as claimed in claim 4. Claims 4 and 36 are, therefore, believed allowable as not anticipated under 35 U.S.C. § 102 by Nachumovsky.

Regarding claim 7 and 28, these claims have been cancelled, rendering this rejection moot with respect to those claims.

### **Section 102 Rejection Based on Lino et al.**

Claims 6, 8, 9, and 29-35 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Lino et al (U.S. Patent No. 6,380,753, hereinafter "Lino"). This rejection is respectfully traversed as addressed with regard to individual claims below.

Regarding claims 6, 8, 29 and 30, the Office Action states that Lino in Fig. 2 shows a probe card assembly comprising a programmable controller (13) to provide test signals to probes of probe card (17), the programmable controller (13) comprising a serial to parallel converter (31,25) configured to receive test signals (from 12) and to convert the test signals from serial to parallel and distribute the test signals in parallel to the test probes.

In Lino, however, the multiplexer 31 and D/A converter 25 are shown in Fig. 2 as part of an application measurement module 13 provided separate from the I/F interface 17 containing test probes (identified by the Office Action as a probe card 17). See Lino, col. 6, lines 6-8. Thus, in contrast with claims 6, 8, 29 and 30, the components of measurement module 13 are not provided as part of a probe card assembly as claimed. As indicated in Applicants' paragraph 44, the serial bus interface minimizes the amount of interface wires needed to connect test signals to a probe card. Accordingly, claims 6, 8, 29 and 30 are believed allowable as not anticipated by Lino under 35 U.S.C. § 102.

Regarding claim 9, the Office Action states that that Lino in Fig. 2 shows a serial digital to analog converter (25) serially receiving a digital test signal and distributing the signal in analog form to the test probes.

In Lino, however, the D/A converter (25) output is provided to a current monitoring device 23. The current monitoring device 23, then receives signals from multiplexer 22 and all signals from the current monitoring device 23 are provided back toward control station 12. None of the signals from D/A converter 25 are indicated as being provided to test probes of the wafer. Further, the data signal provided from controller 21 to the D/A converter 25 appears to be a parallel signal (note the dashed line next to the label "DATA" above the D/A converter indicating multiple lines.) Accordingly, Applicants maintain that claim 9 is allowable as not anticipated by Lino under 35 U.S.C. § 102.

Regarding claim 31, the Office Action indicates that Lino in Fig. 2 shows that the probe card assembly contains a serial to parallel converter comprising an FPGA. Applicants respectfully traverse this rejection. Nowhere in Fig. 2 of Lino, nor elsewhere

in the Lino is such an FPGA disclosed. Accordingly, claim 31 is believed allowable as not anticipated by Lino under 35 U.S.C. § 102.

Regarding claims 32 and 35, these claims are believed allowable as not anticipated by Lino based at least on their dependency on respective claims 29 and 33.

Regarding claim 33, the Office Action states that Lino in Fig. 2 shows a probe card assembly with a serial digital to analog converter (25) serially receiving a digital test signal and distributing the signal in analog form to the test probes. In contrast with the Office Action assertion, however, the D/A converter (25) output is provided to a current monitoring device 23 and not to test probes. All signals from the current monitor device 23 are provided back toward control station 12. None of the signals from D/A converter 25 are indicated as being provided to test probes of the wafer. Further, the data signal provided from controller 21 to the D/A converter 25 appears to be a parallel signal (note the dashed line next to the label “DATA” above the D/A converter indicating multiple lines.) Accordingly, Applicants maintain that claim 33 is allowable as not anticipated by Nelson under 35 U.S.C. § 102(b).

Claim 34 is believed allowable as not anticipated by Nelson based at least on its dependency on claim 33.

### **Section 103 Rejection Based on Nelson et al in view of Leas et al**

Claims 25 and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nelson (U.S. Patent No. 5,550,480) in view of Leas et al (U.S. Patent No. 6,351,134). Claims 25 and 27 have been cancelled rendering this rejection moot.

**Section 103 Rejection Based On Leas in view of Sporck**

Claim 26 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Nelson in view of Leas and further in view of Sporck (U.S. Patent No. 6,856,150). Claim 26 has been cancelled rendering this rejection moot.

**Conclusion**

In light of the above amendments and remarks, claims 4, 6, 8-9 and 29-36 are now all believed to be in condition for allowance. Accordingly, reconsideration and allowance of these claims is respectfully requested.

No fee is believed due with this response. Should a fee be due, the Commissioner is hereby authorized to charge the fee to Deposit Account No. 06-1325.

Respectfully submitted,

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